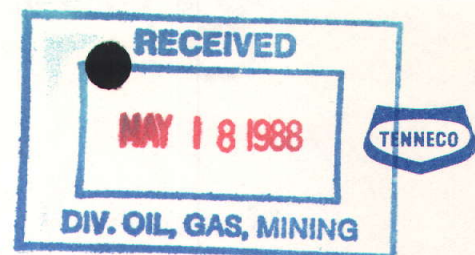


Tenneco Minerals
A Tenneco Company

M/053/005

P.O. Box 2650
St. George, Utah 84770



May 16, 1988

Holland Shepherd
Utah Dept. of Natural Resources
Div. of Oil, Gas & Mining
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Dear Mr. Shepherd;

I believe we now have enough information to demonstrate that acid mine drainage will not be a problem at the Goldstrike Mine. At Dave Whams request we estimated the tonnage and acid potential for sulfide ores and waste in the projected pits. The results of that study indicated 336,790 tons of sulfide material with ore grade gold values. Another 155,190 tons of sulfide had lower than ore grade gold values (in other words waste). The total amount of sulfide material identified at the mine is then 491,980 tons. We analyzed five samples of sulfide material using the EPA-600/2-78-054 procedure recommended by Dave Wham. (See attached reports from ACZ Inc.) As you can see the average acid potential was a -39.

Since the acid forming potential exceeded the -5 threshold mentioned by Dave Wham, we analyzed the pits for potential neutralizing agents. The Hamburg Pit, which contains all the sulfide material also has 2,073,000 tons of limestone. Four samples of this material were analyzed using the same EPA procedure. The analyses results averaged +603. Thus each ton of limestone could neutralize more than 15 times its own weight in acid or 31,095,000 tons of the identified acid material.

As was pointed out earlier the sulfide waste amounted to 155,190 tons. Operationally, it would not be difficult to designate a specific location on the waste dumps for disposal of both acid forming and acid neutralizing materials. The materials will be mixed by the dumping action of the trucks. Further much of the leach pad area will be built on these waste dumps. One specification for leach pad foundations is installation of 10 feet of engineered fill on top of end dump fill. Tenneco Minerals has no problem with committing to not including sulfide materials in any part of an engineered fill. Therefore the sulfide waste will also be buried and oxygen will not readily come into contact with the sulfides.



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The ore portion of the sulfide material will be placed on leach pads just like regular ore. At this juncture all that is certain is that the sulfide ore grade material will be placed on a separate pad with a liner comparable to that used for regular leaching. The solutions generated from this separate leach pad will also be kept separate from normal leach liquors.

I hope this dicussion allays yours concerns regarding the sulfide materials in the Goldstrike pits. I await your reply.

Sincerely Yours,

A handwritten signature in blue ink, appearing to read "K.W. Grubaugh".

K.W. Grubaugh P.E.
Pit Operations Supervisor

KWG/kg

cc:M.D. Stairwalt
M. Litus


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*****
* Goldstrike Mine                               Date: 5/15/88
* Acid/Base Spoil Analysis
*
*****
* Sample Name      Sulfur      Neutralization      Acid-Base
*                   Total        Potential        Potential
*                   %           % CaCO3          Tons CaCO3/1000 tons
*****
* Acid Forming Materials
* 88-SI/0142        1.47%          <1              -46
* 88-SI/0143        1.25%          1              -38
* 88-SI/0144        0.82%          2              -24
* 88-SI/0145        1.20%          3              -35
* 88-SI/0146        1.66%          <1              -52
* -----
*      Total        6.40%          2              -195
*      Average      1.28%          0.4            -39
*
* Acid Neutralizing Materials
* 88-SI/0352        0.11%          52.80%         525
* 88-SI/0353        0.04%          66.80%         667
* 88-SI/0354        0.03%          67.20%         671
* 88-SI/0355        0.03%          55.00%         549
* -----
*      Total        0.21%          241.80%        2412
*      Average      0.05%          60.45%         603
*
* Available Neutralization At Goldstrike
*      603/39= 15.46
* In other words 1000 tons limestone will neutralize 15460 tons
* of acid forming materials.
*
*
*
*****

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ACZ INC./LABORATORY DIVISION
SOILS ANALYSES REPORT

Client: Tenneco Minerals
P.O. Box 2650
St. George, Utah 84770
Attn: Ms. Julie Lewis

Report Date: 05/16/88
Date Received: 05/05/88

LAB NO.	SAMPLE I.D.	Sulfur Total %	Neutralization Potential % CaCO ₃	Acid-Base Potential Tons CaCO ₃ /1000 tons
88-SI/0352	HB-1 (PC)	0.11	52.8	525
88-SI/0353	HB-2 (TL1)	0.04	66.8	667
88-SI/0354	HB-3 (MR)	0.03	67.2	671
88-SI/0355	MZ-1 (PC)	0.03	55.0	549

Ralph V. Poulsen
Ralph V. Poulsen, Laboratory Director

05/16/1988

10:31

ACZ INC.

303 879 9048

P.02

TOTAL P.02

CLIENT Tenneco

* 24.00 / sample

Tennessee Minerals

P.O.B. 2650

St. George ut 84770

Ms. Julie Lewis

SHELL _____

FAX # (501) 673-1208

[illegible]

SAMPLE ID

86-27-70'-105'-110'-120'

86-84-115'-160'

86-85-80-90-95-105'

86 - 88 - 95' - 130'

86-132 75'-105'

-39

03/22/1988

16:42

002 INC.

XXXXXX

303 879 9048

P. 01